Object Oriented Runtime Comparison

Object

Type

Field1   [value]

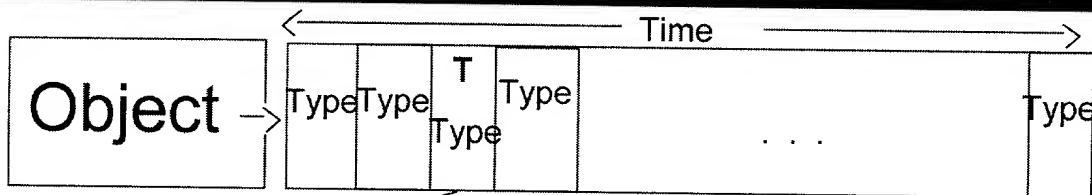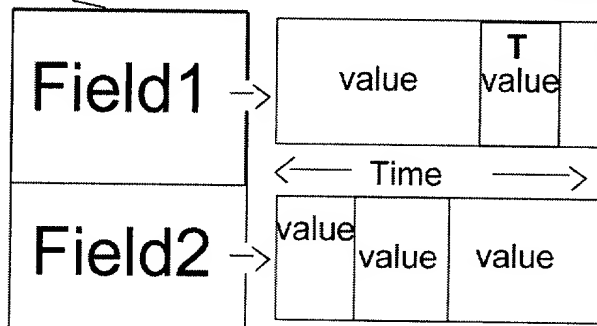#### Field2   [value]
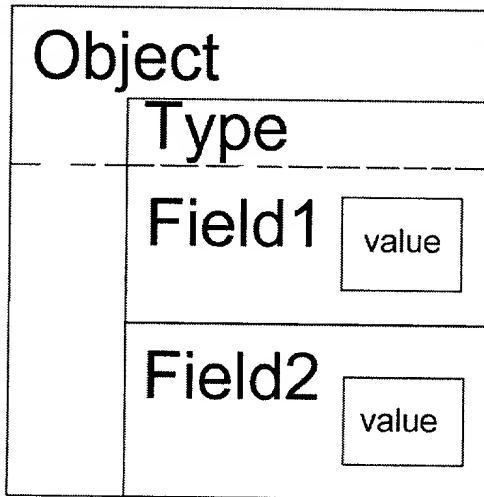
OOP

To evaluate Object.Field1:
1) Lookup static Type,
2) Lookup static Field1 location,
3) Retrieve value.

FIGURE 1

Object → | Type | Type | **T** Type / Type | Type | . . . | Type |

Time →

Temporal OOP

Field1 → | value | **T** value |

Time →

Field2 → | value | value | value |

Time →

To evaluate Object.Field1:
1) Lookup Type at time T,
2) Lookup Field1 location,
3) Lookup value at time T,
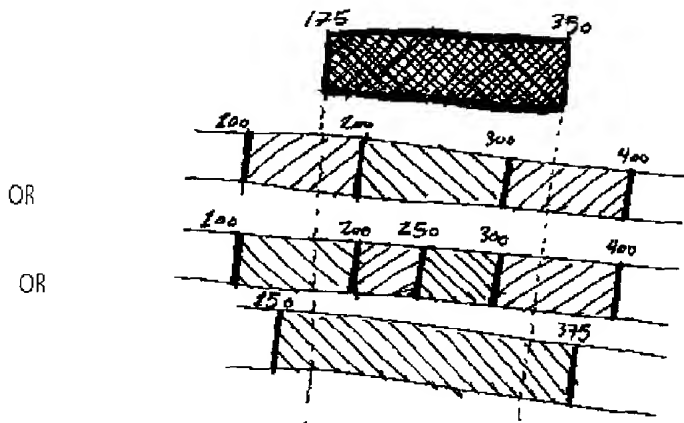4) Retrieve value.

FIGURE 2

GENERAL ERROR CONDITIONS

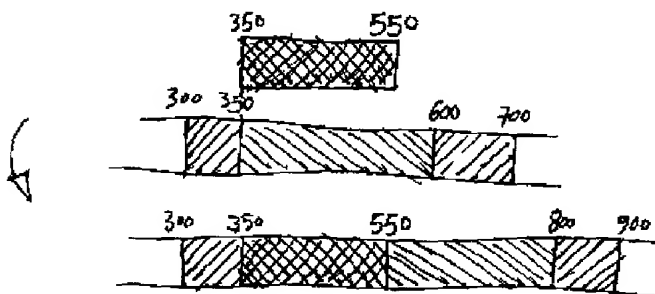OR

OR

FIGURE 3

ADD_NEW_ATTRVAL_SHIFT (ONE END-POINT)
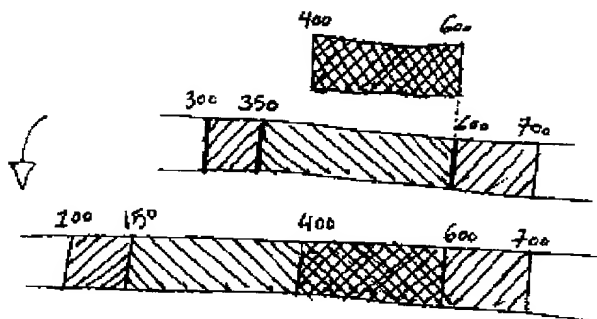

FIGURE 4

ADD_NEW_ATTRVAL_SHIFT (ONE END-POINT)
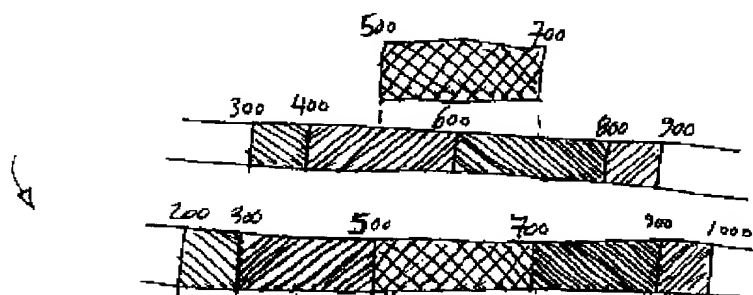

FIGURE 5

ADD_NEW_ATTRVAL_SHIFT (TWO END-POINTS)

FIGURE 6

GENERAL ERROR CONDITIONS

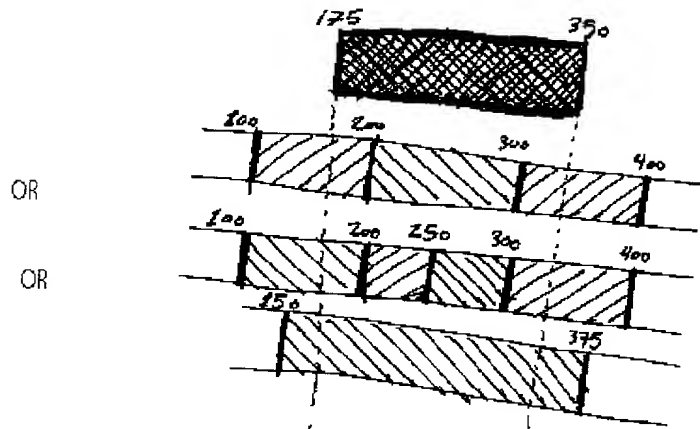175   350

100   200   300   400

OR

100   200   250   300   400

OR

150   375

FIGURE 7

ADD_NEW_ATTRVAL_SQUEEZE (ONE END-POINT)

450   600

300   400   600   700

300   400 450   600   700
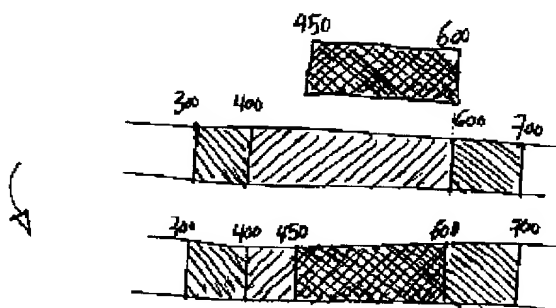
FIGURE 8

ADD_NEW_ATTRVAL_SQUEEZE (ONE END-POINT)
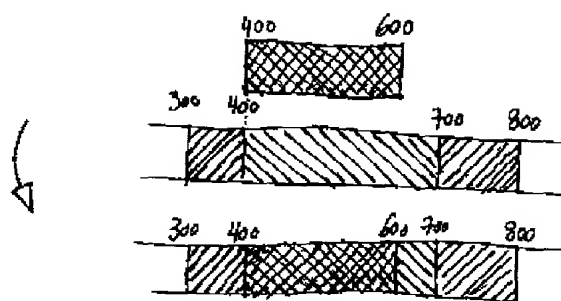
FIGURE 9

ADD_NEW_ATTRVAL_SQUEEZE (TWO END-POINTS)
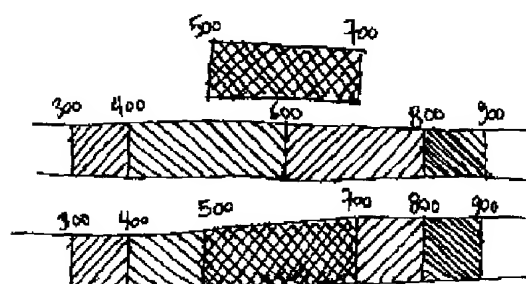
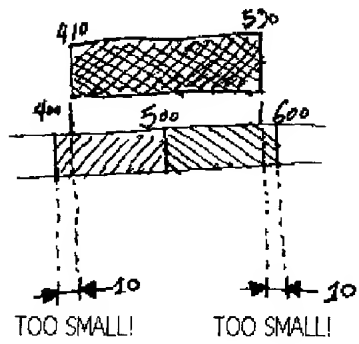FIGURE 10

ERROR CONDITION - ADD_NEW_ATTRVAL_SQUEEZE

410   570

400   500   600

←10   ←10
TOO SMALL!   TOO SMALL!

When MIN_ATTRVAL_SIZE == 20

FIGURE 11

FINAL_EDIT_ATTRVAL_SHIFT

(600,700) ⟹ (500,750)

300 400   600 700 850   1050   1300

200 300   500   750 900   1100   1350
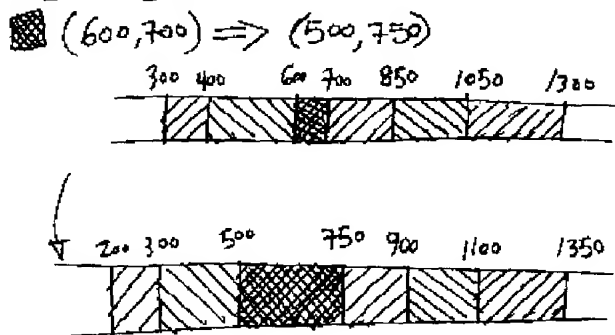
FIGURE 12

FINAL_EDIT_ATTRVAL_SQUEEZE
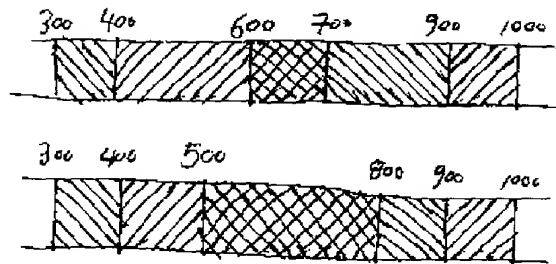
FIGURE 13

ERROR CONDITIONS - FINAL_EDIT_ATTRVAL_SQUEEZE

NEIGHBORS BECOME TOO SMALL

NEIGHBORS' BOUNDARIES
EXCEEDED BY NEW ATTRVAL
FROM/TO RANGE
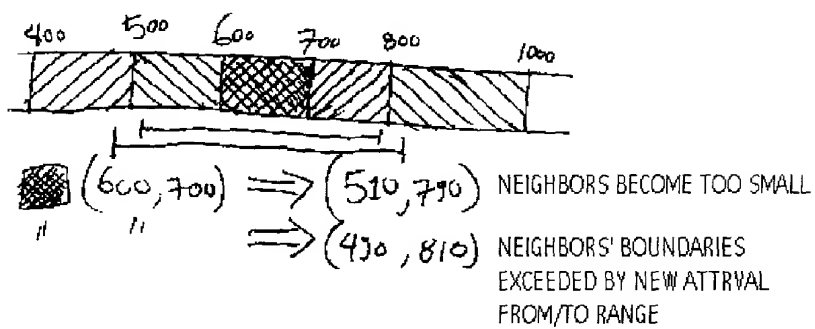
When MIN_ATTRVAL_SIZE == 20 (for example)

FIGURE 14

FINAL_REMOVE_ATTRVAL_SHIFT

▨ (500, 600) ⇨ 550

350 400 500 600 650 750

400 450 550 600 700
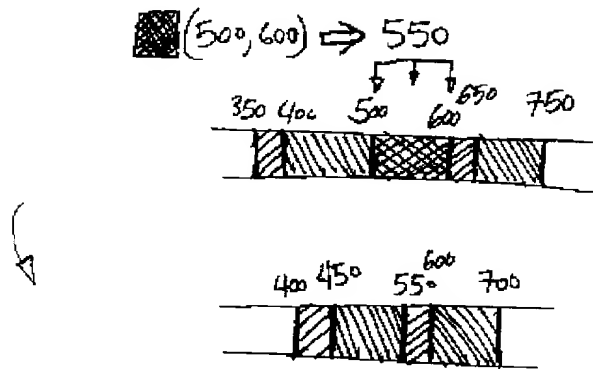
FIGURE 15

FINAL_REMOVE_ATTRVAL_LEAVE_GAP

▨ (500, 600)

300 350 500 600 700 800

300 350 500 600 700 800
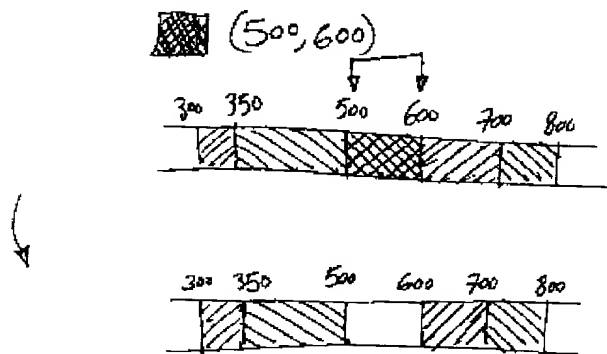
FIGURE 16

FINAL_REMOVE_ATTRVAL_FILL

FIGURE 17